

IN THE CLAIMS:

Please cancel Claims 2, 3, 5, 7, and 9, without prejudice or disclaimer of subject matter. Please amend Claims 1, 4, 6, 8, and 27, and add new Claims 28-32, as indicated below. The following is a complete listing of claims and replaces all prior versions and listings of claims in the present application:

Claim 1 (currently amended): A photoelectric conversion device comprising:

a plurality of photoelectric conversion regions, each photoelectric conversion region having a first semiconductor region for accumulating electric charges that correspond to incident light;

a plurality of electrodes, each electrode being arranged at a side of a corresponding first semiconductor region for transferring a signal charge from said first semiconductor region; and

a plurality of amplifying field effect transistors, each field effect transistor receiving a signal charge from a corresponding photoelectric conversion region inputted by a corresponding electrode, wherein:

each first semiconductor region is surrounded by a potential barrier region[[,]] that includes at least an oxidized film for isolation, a channel stopping layer directly below said oxidized film, and a buried isolation region whose conductivity type is opposite to said conductivity type of said first semiconductor region below said channel stopping layer.

for each potential barrier region, a nick region is formed in a part of [[each]] said potential barrier region and is arranged at a side different from a side at which a corresponding

electrode is arranged, such that said potential barrier region does not include a buried isolation region at said part in which said nick region is formed, and

a source or drain region of each field effect transistor is placed adjacent to a corresponding nick region, said source or drain region having a same conductivity type as a conductivity type of said first semiconductor regions.

Claims 2 and 3 (cancelled).

Claim 4 (currently amended): A photoelectric conversion device according to claim 1,

wherein each first semiconductor region is formed in a low impurity concentration region that is doped with an impurity of a same conductivity type as said conductivity type of said first semiconductor regions at an impurity concentration lower than an impurity concentration of said first semiconductor regions, and

wherein said buried isolation regions, whose conductivity type is opposite to said conductivity type of said first semiconductor regions, is formed below each field effect transistor, respectively.

Claim 5 (cancelled).

Claim 6 (currently amended): A photoelectric conversion device according to claim [[5]] 4,

wherein each of said buried isolation ~~region~~ regions surrounds a region larger than a corresponding first semiconductor region, and

wherein said region surrounded by said corresponding buried isolation region functions as a photosensitive region.

Claim 7 (cancelled).

Claim 8 (currently amended): A photoelectric conversion device according to claim [[5]] 4, wherein each buried isolation region is ~~respectively~~ not positioned at least in part in an area below a source or drain region, adjacent to a corresponding nick region, of a corresponding field effect transistor.

Claim 9 (cancelled).

Claim 10 (previously presented): A photoelectric conversion device according to claim 4, wherein said low impurity concentration region is one of a semiconductor substrate, an epitaxial layer, and a well.

Claim 11 (previously presented): A photoelectric conversion device according to claim 1, wherein each source or drain region is connected to a fixed electric potential or a similar electric potential.

Claim 12 (previously presented): A photoelectric conversion device according to claim 1, wherein a semiconductor region whose conductivity type is opposite to a conductivity type of

said plurality of photoelectric conversion regions is positioned below each of said first semiconductor regions, respectively.

Claim 13 (previously presented): A photoelectric conversion device according to claim 1, wherein said photoelectric conversion device is part of an image pick-up system that includes:

an optical system for forming an image in said photoelectric conversion device;

and

a signal processing circuit for processing a signal outputted from said photoelectric conversion device.

Claims 14-26 (cancelled).

Claim 27 (currently amended): A photoelectric conversion device comprising:

a plurality of photoelectric conversion regions, each photoelectric conversion region having a first semiconductor region for accumulating electric charges that correspond to incident light;

a plurality of electrodes, each electrode being arranged at a side of a corresponding first semiconductor region for transferring a signal charge from said first semiconductor region; and

a plurality of amplifying field effect transistors, each field effect transistor receiving a signal charge from a corresponding photoelectric conversion region inputted by a corresponding electrode, wherein:

each first semiconductor region is surrounded by a potential barrier region that includes at least an oxidized film for isolation, a channel stopping layer directly below said oxidized film, and a buried isolation region whose conductivity type is opposite to said conductivity type of said first semiconductor region below said channel stopping layer, and

for each potential barrier region, a nick region is formed in a part of [[each]] said potential barrier region, said nick region being arranged between a corresponding first semiconductor region and a source or drain region of a corresponding field effect transistor, and said nick region being arranged at a side different from a side at which a corresponding electrode is arranged, such that said potential barrier region does not include a corresponding buried isolation region at said part in which said nick region is formed, said source or drain region of said corresponding field effect transistor being positioned adjacent to said nick region, and said source or drain region having a same conductivity type as a conductivity type of said first semiconductor regions.

Claim 28 (new): A photoelectric conversion device according to claim 27,

wherein each first semiconductor region is formed in a low impurity concentration region that is doped with an impurity of a same conductivity type as said conductivity type of said first semiconductor regions at an impurity concentration lower than an impurity concentration of said first semiconductor regions, and

wherein said buried isolation regions, whose conductivity type is opposite to said conductivity type of said first semiconductor regions, is formed below each field effect transistor, respectively.

Claim 29 (new): A photoelectric conversion device according to claim 27, wherein said photoelectric conversion device is part of an image pick-up system that includes:

an optical system for forming an image in said photoelectric conversion device;

and

a signal processing circuit for processing a signal outputted from said photoelectric conversion device.

Claim 30 (new): A photoelectric conversion device comprising:

a photoelectric conversion region having a first semiconductor region of a first conductivity type for accumulating a signal charge corresponding to an incident light; and

a plurality of amplifying field effect transistors, each receiving said signal charge from said photoelectric conversion region, wherein:

between said first semiconductor region and a second semiconductor region adjacent to said first semiconductor region, an oxide film for element isolation, a channel stop layer just under said oxide film, and a buried layer of a second conductivity type just under said channel stop layer are arranged, and

between said first semiconductor region and a main electrode region of an amplifying field effect transistor, said oxide film and said channel stop layer are arranged, and said buried layer is not arranged.

Claim 31 (new): A photoelectric conversion device according to claim 30, wherein:

said first semiconductor region is formed in a second semiconductor region of said first conductivity type that has an impurity concentration lower than that of said first semiconductor region,

a third semiconductor region of said second conductivity type is arranged under said amplifying field effect transistor, and

said third semiconductor region is not arranged under said main electrode of said amplifying field effect transistor.

Claim 32 (new): A photoelectric conversion device according to claim 30, wherein said photoelectric conversion device is part of an image pick-up system that includes:

an optical system for forming an image in said photoelectric conversion device;
and

a signal processing circuit for processing a signal outputted from said photoelectric conversion device.